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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/992,416	11/16/2001	Ta-Lee Yu	B-4392 619330-6	5531

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EXAMINER
VU, QUANG D

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/992,416	YU ET AL.	
	Examiner	Art Unit	
	Quang D Vu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7-12 and 14-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *1-3,7-12 and 14-18* is/are allowed.

6)☒ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 7-12 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of US Patent No. 5,623,387 to Li et al.

AAPA (figure 1) teaches a low voltage triggered electrostatic discharge (LVTESD) protection circuit, coupled to a pad of an integrated circuit to protect core circuits of the IC from ESD event, the ESD protection circuit comprising:

a semiconductor substrate (16) having the first conductivity type (p-type);

an well region (18) having the second conductivity type (n-type), formed in the semiconductor substrate (16);

an anode doped region (20) having the first conductivity type (p-type), formed in the well region (18);

a gate structure (26), formed in the semiconductor substrate (16) and outside the well region (18), the gate structure (26) having a first side and a second side;

a first doped region (28) having the second conductivity type (n-type), formed between the well region (18) and the gate structure (26), immediately adjacent to the first side of the gate structure (26) in the semiconductor substrate (16);

a second doped region (30) having the second conductivity type (n-type), formed next to the second side of the gate structure (26) in the semiconductor substrate (16); and

AAPA differs from the claimed invention by not showing a plurality of isolated islands distributed in the first doped region so that the resistance of the first doped region is increased. However, Li et al (figures 10C-E) teach a plurality of isolated islands (1011) distributed in the doped region having the second conductivity type (n-type) (305) (column 17, lines 6-12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Li et al. into the device taught by AAPA because it prevents the current hogging and results the device in high ESD voltage tolerance. The combined device shows a plurality of isolated islands distributed in the first doped region so that the resistance of the first doped region is increased.

Regarding claim 2, AAPA teaches a first contact region (34) having the first conductivity type (p-type), formed in the semiconductor substrate (16); and

a second contact region (36) having the second conductivity type (n-type), formed in the well region (18);

wherein the first contact region (34) is coupled to the second doped region (30) and a power pad of the integrated circuit, and the anode doped region (20) is coupled to the pad (12).

Regarding claim 3, AAPA teaches the second contact region (36) is coupled to the anode doped region (20).

Regarding claim 7, the combined device shows the isolated islands are field oxide.

Regarding claim 8, the combined device shows each of the isolated islands (1011) has approximately the same width.

Regarding claim 9, the combined device shows each of the isolated islands (1011) is elongated and approximately parallel to the first side of the gate structure (26).

Regarding claim 10, the combined device shows each of the isolated islands is elongated and approximately perpendicular to the first side of the gate structure (26).

Regarding claim 11, AAPA teaches the first conductivity type is a p-type, and the second conductivity type is an n-type.

Regarding claim 12, the disclosures of AAPA and Li et al. are discussed as applied to claim 1.

Regarding claim 14, the combined device shows a plurality of oxide layers, and each of the isolated islands (1011) is formed by one of the oxide layers.

Regarding claim 15, the combined device shows each of the isolated islands has approximately the same length.

Regarding claim 16, the combined device shows each of the isolated islands (1011) has an elongated profile and is approximately parallel to the first side of the gate structure (26).

Regarding claim 17, the combined device shows each of the isolated islands has an elongated profile and is approximately perpendicular to the first side of the gate structure.

Regarding claim 18, AAPA teaches the first conductivity type is a p-type, and the second conductivity type is an n-type.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

qv
August 11, 2003

SHOUXIANG HU
PRIMARY EXAMINER